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//Q1. WACP that can maintain the name, roll, number
//and marks of a class of students. The size of the class is variable.
// Include func- tion to compute the average marks of the class.

#include<stdio.h>

int average(int sum, int n);

int main(){

int n,i,sum=0;
printf("Enter the size of the class: ");
scanf("%d", &n);

struct class{
    char name[20];
    int roll;
    int marks;
}c[n];

for(i=0; i<n; i++){
    printf("Enter student %d name: ", i+1);
    scanf("%s", c[i].name);
    printf("Enter student %d roll: ", i+1);
    scanf("%d", &c[i].roll);
    printf("Enter student %d marks: ", i+1);
    scanf("%d", &c[i].marks);
    sum+=c[i].marks;
    printf("\n");
}

printf("Student's Information:\n\n");
    printf("||      Name      ||      Roll No.      ||      Marks      ||");
    printf("\n_____");
for(i=0; i<n; i++){
    printf("||%9s      ||%8d      ||%8d      ||\n", c[i].name, c[i].roll,
c[i].marks);
}

printf("\nThe average marks of the class is %d\n", average(sum,n));

return 0;
}

int average(int sum, int n){//function to calculate the average.
    int avg = sum/n;

```

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return avg;  
}
```

Output:

```
Enter the size of the class: 5  
Enter student 1 name: Ruhul  
Enter student 1 roll: 29  
Enter student 1 marks: 40  
  
Enter student 2 name: Akash  
Enter student 2 roll: 22  
Enter student 2 marks: 42  
  
Enter student 3 name: Tapas  
Enter student 3 roll: 25  
Enter student 3 marks: 45  
  
Enter student 4 name: Avik  
Enter student 4 roll: 20  
Enter student 4 marks: 49  
  
Enter student 5 name: Soura  
Enter student 5 roll: 26  
Enter student 5 marks: 46  
  
Student's Information:  
  
||      Name      ||      Roll No.      ||      Marks      ||  
-----  
||      Ruhul      ||      29      ||      40      ||  
||      Akash      ||      22      ||      42      ||  
||      Tapas      ||      25      ||      45      ||  
||      Avik      ||      20      ||      49      ||  
||      Soura      ||      26      ||      46      ||  
-----  
  
The average marks of the class is 44
```

```
//Q2. Define a structure called "cricket" that will describe the
//following information -
//Player name, Team name, Batting average.
//using "cricket" declare an array "player" with 50 elements and
//write a program to read the information about all the 50 players
// and print a team wise list containing names of players with their
// batting average.
```

```
#include<stdio.h>

int main(){
    int i,Team;
    struct cricket{
        char player_name[20];
        char team_name[2];
        float batting_avg;
    }player[50];

    for(i=0; i<50; i++){
        printf("\nEnter player %d name: ", i+1);
        scanf("%s", player[i].player_name);
        printf("\nEnter player %d team(A/B): ", i+1);
        scanf("%s", player[i].team_name);
        printf("\nEnter player %d batting average: ", i+1);
        scanf("%f", &player[i].batting_avg);
    }

    printf("\nTeam A player's info:\n");
    printf("||      Name      ||      Batting Average      ||");
    printf("\n_____ \n");
    for(i=0; i<50; i++){
        if(*player[i].team_name=='A'){
            printf("||%9s      ||          %.2f          ||\n",
player[i].player_name, player[i].batting_avg);
        }
    }
    printf("\n_____ \n");

    printf("\n\nTeam B player's info:\n");
    printf("||      Name      ||      Batting Average      ||");
    printf("\n_____ \n");
    for(i=0; i<50; i++){
        if(*player[i].team_name=='B'){
            printf("||%9s      ||          %.2f          ||\n",
player[i].player_name, player[i].batting_avg);
        }
    }
}
```

```
    }  
}  
printf("\n_____ \n");  
  
return 0;  
}
```

Output:

```
Enter player 1 name: Virat  
Enter player 1 team(A/B): A  
Enter player 1 batting average: 50.91  
Enter player 2 name: Rohit  
Enter player 2 team(A/B): B  
Enter player 2 batting average: 50.11  
Enter player 3 name: Dhoni  
Enter player 3 team(A/B): A  
Enter player 3 batting average: 48.88  
Enter player 4 name: Rahane  
Enter player 4 team(A/B): B  
Enter player 4 batting average: 45.56  
Enter player 5 name: Rahul  
Enter player 5 team(A/B): A  
Enter player 5 batting average: 49.90  
Enter player 6 name: Sachin  
Enter player 6 team(A/B): B  
Enter player 6 batting average: 52.23  
Enter player 7 name: Ishant  
Enter player 7 team(A/B): A  
Enter player 7 batting average: 31.11  
Enter player 8 name: Shami  
Enter player 8 team(A/B): B  
Enter player 8 batting average: 29.29  
Enter player 9 name: Hardik  
Enter player 9 team(A/B): A  
Enter player 9 batting average: 45.55  
Enter player 10 name: Jadeja  
Enter player 10 team(A/B): B  
Enter player 10 batting average: 45.21
```

Team A player's info:

| Name | Batting Average |
|--------|-----------------|
| Virat | 50.91 |
| Dhoni | 48.88 |
| Rahul | 49.90 |
| Ishant | 31.11 |
| Hardik | 45.55 |

Team B player's info:

| Name | Batting Average |
|--------|-----------------|
| Rohit | 50.11 |
| Rahane | 45.56 |
| Sachin | 52.23 |
| Shami | 29.29 |
| Jadeja | 45.21 |

```
//Q3. Write a program to illustrate the use of arrays within
//a structure using dynamic memory allocation.
#include<stdio.h>
#include<stdlib.h>

struct student
{
    char name[20];
    int roll;
};

int main()
{
    struct student *s;
    int i,n;
    printf("Enter the number of records you wish to enter: ");
    scanf("%d",&n);
    s = (struct student*)malloc(n*sizeof(struct student));
    for(i=0;i<n;i++)
    {
        printf("Enter the roll number and name of student no. %d: ",
i+1);
        scanf("%d %s",&(s+i)->roll,(s+i)->name);
    }
    printf("Now showing the students info:\n");
```

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printf("| Roll | Name |\n");
printf("_____\n");
for(i=0;i<n;i++)
{
    printf("%4d |%12s |\n", (s+i)->roll, (s+i)-
>name);
}
printf("_____\n");
return 0;
}

```

Output:

```

Enter the number of records you wish to enter: 5
Enter the roll number and name of student no. 1: 29 Ruhul
Enter the roll number and name of student no. 2: 22 Avik
Enter the roll number and name of student no. 3: 25 Akash
Enter the roll number and name of student no. 4: 21 Ankan
Enter the roll number and name of student no. 5: 27 Debu
Now showing the students info:
| Roll | Name |
-----
| 29 | Ruhul |
| 22 | Avik |
| 25 | Akash |
| 21 | Ankan |
| 27 | Debu |
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```